New governance approaches to environmental regulation: an example of the Code for Sustainable Homes (CSH)

NEW GOVERNANCE APPROACHES TO ENVIRONMENTAL REGULATION: AN EXAMPLE OF THE CODE FOR SUSTAINABLE HOMES (CHS)

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Environmental policy in the United Kingdom (UK) is witnessing a shift from command-and-control approaches towards more innovation-orientated environmental governance arrangements. These governance approaches are required which create institutions which support actors within a domain for learning not only about policy options, but also about their own interests and preferences. The need for construction actors to understand, engage and influence this process is critical to establishing policies which support innovation that satisfies each constituent's needs. This capacity is particularly salient in an era where the expanding raft of environmental regulation is ushering in system-wide innovation in the construction sector. In this paper, the Code for Sustainable Homes (the Code) in the UK is used to demonstrate the emergence and operation of these new governance arrangements. The Code sets out a significant innovation challenge for the house-building sector with, for example, a requirement that all new houses must be zero-carbon by 2016. Drawing upon boundary organisation theory, the journey from the Code as a government aspiration, to the Code as a catalyst for the formation of the Zero Carbon Hub, a new institution, is traced and discussed. The case study reveals that the ZCH has demonstrated boundary organisation properties in its ability to be flexible to the needs and constraints of its constituent actors, yet robust enough to maintain and promote a common identity across regulation and industry boundaries.

Keywords: boundary organisation, Code for Sustainable Homes, environmental regulation, innovation.

INTRODUCTION

Environmental policy in the United Kingdom (UK), as elsewhere, is witnessing a shift from command-and-control approaches towards more innovation-orientated environmental governance arrangements. In broad terms, this trend is in response to criticism that command-and-control policies constrain innovation in so far as companies pursue minimum compliance. This concern has been played out, for example, in the prescriptive-based building (command-and-control regulation) versus performance-based building (innovation-orientated regulation) debates. Advocates of performance-based building codes stress that designers and contractors have "the freedom to choose one of several possible means to achieve the required performance and therefore provides for flexibility and innovation" (Bowen and Thomas, 1997: 3). These types of debate epitomise the research trajectory in this area to date; namely, what is the impact of regulation on innovation? It is interesting to note that the

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prevailing assumption in this scholarship is that the regulations arrived on the scene in a fixed, complete state and the focus of attention is limited to how companies respond to them. There is a dearth of research on how regulations are produced and what role (if any) construction companies and other actors have in influencing their form and content. There are notable exceptions, although they pursue different, but complementary research questions. Lovell (2008), for example, traces how discourse played a powerful role in forming, organising and articulating the low energy housing innovation agenda in the UK.

The purpose of this paper is to complement this small, but growing body of research and provide an initial exploration into the emergence of environmental regulation from a boundary organisation theoretical lens. This is timely, given the recognition that designing and operationalising effective regulation which stimulates innovation is a far more complex activity than with command-and-control strategies. New governance approaches are required which create institutions which support actors within a domain for learning not only about policy options, but also about their own interests and preferences.

The paper will adopt boundary organisation theory to understand the emergence, role and impact of the Zero Carbon Hub (ZCH) in influencing the ongoing development of the UK Government's Code for Sustainable Homes (the Code). The findings reveal an interesting picture. The ZCH appears to be serving as a valuable co-operative, reflexive governance institution. The Hub is allowing the housing developer and government regulator communities to work together to produce more effective environmental regulation, whilst being sufficiently flexible to allow individual actors to reflect on and advocate their interests. The ZCH model may well prove to be a blueprint for future environmental regulation governance in the construction sector. The research has confirmed the boundary organisation concept as a useful lens to understand the formation of environmental regulation and there is a call for further theoretical and empirical research to extend its explanatory and prescriptive value. Finally, the future of the ZCH offers some intriguing questions from a boundary organisation perspective. The ZCH is seeking to continue its life beyond the originally intended focus on the Code. If it does, will the ZCH still be in a position to straddle the boundary between the regulator and housing sector communities, or will it be forced to camp on one or other side of the divide, thus eroding the very feature which has made it a successful boundary organisation to date?

The paper will be structured as follows. First, the rationale for the broad shift to 'second generation' innovation-orientated regulation from 'first generation' command-and-control regulation will be described, with a particular focus on the range of new policy instruments which are emerging. Second, the theoretical concept of boundary organisations will be discussed and three research questions distilled. Third, case study results will be given, structured around these research questions. Finally, conclusions are drawn.

UK ENVIRONMENTAL REGULATION: FROM COMMAND-AND-CONTROL TO INNOVATION-ORIENTATED APPROACHES

The limitations of the ‘first generation’ command-and-control regulations with respect to the company-driven innovation were brought into the limelight in the seminal Porter Hypothesis which stressed that "properly designed environmental regulation can trigger innovation that may partially or more fully offset the costs of complying

with them" (Porter and van der Linde, 1995: 98). They go on to argue that: "if environmental standards are to foster the innovation offsets that arise from new technologies and approaches to production, they should adhere to three principles. First, they must create the maximum opportunity for innovation, leaving the approach to innovation to industry and not the standard-setting agency. Second, regulations should foster continuous improvement, rather than locking in any particular technology. Third, the regulatory process should leave as little room as possible for uncertainty at every stage" (p. 110).

These features of 'second generation' innovation-orientated environmental regulation are now evidence on a range of fronts. Work by the Organisation for Economic Co-operation and Development, for instance, advocates that "the more 'flexible' policy regime will induce more innovation than a regime which is prescriptive in nature" (Johnstone *et al*., 2010: 23). Similarly, the UK Government's Department for Business Enterprise and Regulatory Reform argues that successful regulation "provide business with some flexibility as to how they deliver desired policy outcomes" (BERR, 2008: vi).

The process through which environmental regulation is being developed (as well as the content of the final regulation) is showing a similar shift away from prescriptive mechanisms to new co-operative, reflexive governance approaches. As part of this movement, there is growing recognition that non-governmental actors have important roles to play in regulation formulation and, on occasions, are formally co-opted by the state (e.g. Hutter, 2006). Environmental regulations, if they are to be effective, need key actors to be more than the recipients of policy decisions; they need to be part of the deliberative process that shapes them. Further, co-operative approaches are considered to produce more legitimate policy outcomes as they involve more directly the target groups in the drafting and implementation of environmental regulations (Hey *et al*., 2003). The three principle benefits are as follows. First, co-operative approaches are more successful than direct regulation in making use of industry 'insider' knowledge and experience. As Benn and Dunphy (2007: 4) argue, "increasingly standards are not set by governments but by non-profit organizations and industry associations." Second, co-operative approaches may improve implementation by reducing the target-groups' resistance to environmental regulations which they themselves have had a hand in drafting (De Clercq and Suck, 2002). Finally, co-operative forms of environmental governmental governance are expected to reduce public expenditure on securing compliance (Golbu, 1998). By building a more consensual relationship between regulator bodies and industry, they may "decrease regulatory capture and lend legitimacy to environmental policy by substituting direct public involvement for command-and-control's infamous 'poacher and gamekeeper' relationship" (Golub, 1998: 6).

BOUNDARY ORGANISATIONS

Co-operative, reflexive orientated governance arrangements, in reiterate, create institutions which facilitate actors within a domain for learning not only about policy options, but also about their own interests and preferences. The boundaries between such interests (which may be in tension or harmony) and the mediating role that material artefacts and / or social processes have in translating and assembling these interests in a shared space has become increasingly important in the social sciences. Star and Griesemer's (1989) influential work on boundary objectives has provided a theoretical articulation which has been instrumental in guiding this blossoming

research agenda. Boundary objects are artefacts that exist at junctures where interest groups meet in an arena of mutual concern. Social processes of translation allows boundary objects to be (re)constructed to meet the specific needs or demands placed on it by different interests involved and hence can be scenes of intense controversy and manoeuvring for the power to define them. The distinctive translations used within different interest worlds for their own purposes also enable boundary objects to facilitate cooperation without consensus. The study of boundary objects is beginning to have purchase within a construction context to investigate the different participants through their distinctive relations with and discourses about the specific boundary object in question (for example, see Bresnen and Harty, 2010).

The concept of boundary objects has been developed and extended in a number of different directions. Of interest in this paper is the idea of the 'boundary organisation.' The boundary organisation concept has its roots in the context of ‘science’ and ‘politics’ and recognised that boundary objects could only have form and traction through the consent of actors on different sides of a boundary (Guston, 2001). We follow van Lente's *et al*. (2003) broadening of the concept to intermediaries operating in other spheres of policy: in this case, the Zero Carbon Hub as a boundary organisation of myriad actors across the new housing development sector and the UK regulator boundaries. It is the formation of actors' consent is central to boundary organisations which seek through social arrangements, networks and institutions to mediate between different interests and logics (Miller, 2001). More specifically, Guston (2001) posits that boundary organisations: they involve the participation of interest groups from both sides of the boundary; and, they exist at the frontier of the two relatively different social worlds of the interest groups, but they have distinct lines of accountability to each. Boundary organisations are thus institutions that straddle interest group boundaries and, in so doing, internalise the provisional and ambiguous character of that boundary (Guston, 1998). Successful boundary organisations will "succeed in pleasing two sets of principals and remain stable to external forces astride the internal instability at the boundary" (Guston, 1998: 30). This implicitly involves the production and overseeing of boundaries to achieve and maintain credibility of the co-produced activities and outputs of the organisation (Gieryn, 1999).

The discussion on boundary organisation will be mobilised to structure the case study detailed below on the Code and the ZCH around the following questions: (i) what were the regulatory pressures which created the opening for the emergence of the ZCH? (ii) how has the ZCH designed and operated itself as a boundary organisation? and, (iii) what impact has the ZCH had in influencing the Code?

CASE STUDY: THE CODE FOR SUSTAINABLE HOMES

Introduction: brief overview of the Code for Sustainable Homes

Housing in the UK accounts for around 30% of all energy consumed in the UK (National Audit Office, 2008: 4) and is responsible for 27% of all carbon emissions (DEFRA, 2007: 20). The Code is part of the UK government’s agenda to improve the sustainability of new dwellings, especially with a view to national targets for reducing carbon dioxide emissions. The Code assesses the sustainability of a new home against nine categories of sustainable design, rating the ‘whole home’ as a complete package; it covers energy and CO2 emissions, water, materials, surface water run-off, waste, pollution, health and wellbeing, management and ecology (CLG, 2010 and 2008). The Code uses a ‘sustainability rating system’, indicated by ‘stars’, to communicate the overall sustainability performance of a new home (CLG, 2008). A home can achieve a

sustainability rating from one to six stars depending on the extent to which it has achieved Code standards (CLG, 2010).

The Code was first introduced by the UK government's Department for Communities and Local Government (CLG) as a voluntary standard in England in April 2007 and legally binding in May 2008. The government's intention is for all new homes to be zero carbon by 2016 (CLG, 2007a), with a progressive tightening of the energy efficiency Building Regulations (Part L) (DERFA, 2007) – by 25% in 2010 and by 44% in 2013 – up to the zero carbon target in 2016 (CLG, 2007a: v).

(i) What were the regulatory pressures which created the opening for the emergence of the Zero Carbon Hub?

The UK housing sector is highly concentrated with a number of large volume house builders. The dominant business model pursued by housing developers has long been built round relatively standard designs and repetition of work. The original Government aspiration for the Code (particularly the zero-carbon requirement for all new homes by 2016) sent out a strong message to the new build housing sector that there would be considerable technical challenges with the potentiality to significantly disrupt this business model and usher in a period of radical system-wide innovation. Further, the scale and scope of the potential challenge faced by the housing sector was unknown due to the lack of detail of the requirements when the Code was first launched in 2006 (CLG, 2006a; Schweber and Sexton, in review).

The Home Builders Federation (HBF), a major housing developer industry representative group, sought dialogue with the CLG to work with the government in the development and implementation of the Code. From these (and other) discussions, the 2016 Zero Carbon Taskforce was established in January 2007, following the publication in December 2006 of the Government's policy statement Building a Greener Future (CLG, 2006b). The 2016 Task force is jointly chaired by the Housing Minister and the HBF Executive Chairperson. The Taskforce's terms of reference are to (CLG, 2007b: 97):

- identify the barriers to implementation of the zero carbon 2016 target, and put in place measures to address them;
- develop a commitment publication alongside the final Building a Greener Future policy statement, which will set out the respective roles of Central and Local Government and business as we move towards the zero carbon 2016 target; and,
- develop a timeline for steps that need to be taken over the next ten years to support the implementation of the zero carbon 2016 target.

The ZCH (http://www.zerocarbonhub.org/) was launched by the Housing Minister in June 2008 to support the delivery of zero carbon new homes by 2016 (ZCH, 2008). It is a public/private partnership drawing support from both Government and the industry and reports directly to the 2016 Taskforce. The need for the venture was identified in the one of the recommendations in The Review of Housebuilding Delivery – The Calcutt Review, which stated that "Government and the housebuilding, construction products and energy supply industries should jointly sponsor a delivery unit to monitor, co-ordinate and guide the zero carbon programme" (CLG, 2007b: 96). More than 25 organisations representing housing developers, construction material and product bodies, client groups and non-government organisations were consulted before the ZCH was launched.

(ii) How has the ZCH designed and operated itself as a boundary organisation?

The ZCH, at its inception, was designed to promote working across the regulation – new housing development industry boundary. The Hub was set up and co-funded by CLG (the 'regulator') and National House Building Council (NHBC) and Robust Details Ltd, in addition to in-kind contributions from the NHBC and Fulcrum Consulting (the 'industry') (ZCH, 2008). The ZCH board has broad-based representation and constitution representation from across industry. The ZCH board is made up of members from the following organisations: UK Green Building Council, Construction Products Association, HBF, Homes and Communities Agency, NHBC, Energy Saving Trust (EST) and Robust Details Limited. The interests and motivations of the membership are extremely diverse and, in a number of incidents, are very much in tension. The actor groups, however, take the ZCH to a legitimate institution to pursue their individual interests and influence the interests of others.

The stated purpose of ZCH is to assist the housing development sector understand the challenges, issues and opportunities involved in developing, building and marketing low and zero carbon homes. Further, the ZCH is advising the Government on the development of important parts of the Code. For example, at the end of July 2010 the Housing Minister and Local Government commissioned the ZCH to establish a Task Group to recommend an appropriate national Carbon Compliance limit which would form part of the overall definition of a zero carbon home in the 2016 Building Regulations (ZCH, 2011b). To coordinate the delivery of zero carbon homes and to monitor delivery against the Government's targets, the ZCH has been working closely with the new build housing sector and other interested parties to establish a common view on a series of broadly representative timelines. The timelines have been designed to help build an understanding across the industry over what is required for zero carbon delivery and to allow progress towards the 2016 target to be monitored and evaluated. A consolidated form of the timeline forms part of the Zero Carbon Delivery Report presented to the 2016 Zero Carbon Task Force and Minister for Housing on a quarterly basis (e.g. ZCH, 2010a). More specifically, ZCH activity has been organised into five work streams: building energy efficiency, energy supply, examples and scale up, skills and training, and consumer engagement (ZCH, 2010b). Each work stream is managed by a Steering Group and supported by a range of key actors from across the industry and private, public and non-governmental organisation sectors. The consumer engagement work stream, for example, has had input from the Sponge Sustainability Network, CLG, EST, Berkeley Homes PLC, Chartered Institute of Marketing, Royal Institution of Chartered Surveyors, Crest Nicholson PLC, and so on.

The ZCH has undertaken influential activity to shape the Code (see below). But that does not mean that there has been uniform consensus across the diverse range of actors on the direction and content of the Code. The ZCH was a space, first and foremost, to promote particular interests. If an actor could not successful promote those interests in a particular part of the ZCH's work, it could (and did) voice a different, separate view. In the ZCH Carbon Compliance report to the CLG, for example, it was noted in the body of the report that although the House Builders Association (HBA) was part of the working group that produce the report, with respect to the specification of carbon compliance limits for different home types, the HBA did not support the recommended levels for houses (ZCH, 2011b: 8).

(iii) What impact has the ZCH had in influencing the Code for Sustainable Homes?

The ZCH has, through its joint public-private funding and governance model and way of working, has progressed the co-operative, reflexive governance of environment regulation. The importance of ZCH in shaping the Code is evident in BIS (2011: 117), stating "The Government will introduce more realistic requirements for on-site carbon reductions, endorsing the ZCH's expert recommendations on the appropriate levels of on-site reductions as the starting point for future consultation, along with their advice to move to an approach based on the carbon reductions that are achieved in real life, rather than those predicted by models." Moreover, in the UK Government's Plan for Growth document, it is noted that the ZCH Task Group work on 'Carbon Compliance' will form the basis for consultations on future changes to the Building Regulations up to and including those in 2016 (BIS, 2011). The Task Group recommends, for instance, to move to 'as-built performance' of new homes (rather than 'as designed') would be a priority in the development of future Building Regulation changes.

DISCUSSION AND CONCLUSIONS

The ZCH appears to be a viable co-operative, reflexive government institution for the progression of the Code. It has stimulated broad ownership of the Code by the housing development sector and has been an experimental space for diverse parties to come together and develop and support a significant amount of technical innovation, particularly in the areas of the definition of zero-carbon and the carbon compliance limits. Drawing on the Department for Business Enterprise and Regulatory Reform work on effective regulation in more detail (BERR, 2008), the boundary work of the ZCH has certainly overcome the limitations of the command-and-control flavour of the initial UK Government announcement in 2006 that all new homes would be zero-carbon by 2016 in a number of important respects:

- it is providing housing developers more flexibility (through progressive Carbon Compliance and Allowable Solutions) to deliver zero-carbon policy requirements;
- it is better informing housing developers of future changes in the Building Regulations well in advance so that they have sufficient time to comply with new rules and requirements; and,
- developing more technically credible and commercially viable requirements which are more easily understood by housing developers, thus reducing the possibility of misinterpretation.

The ZCH may well be a blueprint for future environmental regulation governance in the construction sector, as evidenced by the Government recommendation "that Government, with the industry, should set up an Existing Housing Hub to bring together the key participants to formulate and monitor delivery of the retrofit programme, all in accordance with the principles set out above" (BIS, 2010: 125).

The theoretical lens of the boundary organisation adopted for this paper proved useful in beginning to articulate and make sense of the emergence and role of the ZCH in developing the Code. The case study has shown the boundary organisation properties of the ZCH in being flexible to the needs and constraints of its constituent actors, yet robust enough to maintain and promote a common identity across boundaries. The findings reported here are based on an analysis of secondary sources. More research is

advocated to develop greater understanding the role of institutions, such as the ZCH, as boundary organisations. In particular, interpretative work is needed to capture individual actors' boundary work in the formation and operation of such co-operative, reflexive governance arrangements. The 'Existing Housing Hub' (BIS, 2011: 125) mooted by the Government, noted above, would be a fruitful scene of enquiry in this regard, as there is a rich opportunity to track and understand its formation and operation in real-time.

As an endnote, the UK Government joint funding of the ZCH has been secured until March 2012 (ZCH, 2011a). The future and funding of the ZCH beyond that date is subject to discussion within the industry. From a boundary organisation perspective a number of intriguing questions arise. A significant part of the ZCH's success has been that it has been set up and operated as a jointed funded organisation with all the credibility and symbolism that has in terms of its explicit role it has had (and is having) in advising the UK Government on the substance of the Code. The ZCH never sought to be neutral or guided by uniform consensus; rather, it sought to be a space for actors to project particular interests and to try and influence the interests of other actors. Will this valuable boundary organisation role and entity be lost if the ZCH becomes too much embedded on the industry side of the boundary? Will the relationship that the ZCH has with the UK Government take a different, more decoupled form? Finally, the boundary work of the ZCH has been focused on the design of the Code - will this work begin to unravel if it does not play an authentic part in the monitoring and evaluating the implementation of the Code?

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